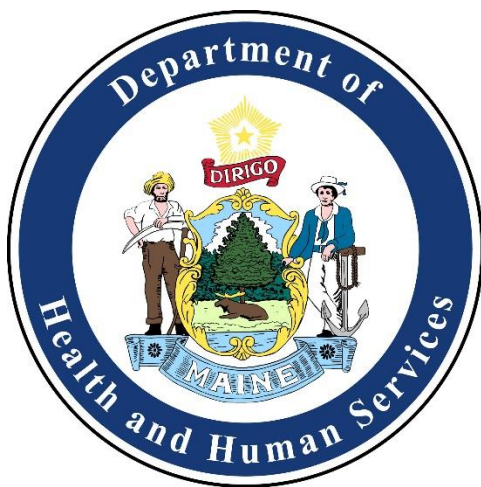


Lung Cancer Screening: Availability of Low-Dose Computed Tomography Services in Maine

May 2018



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Introduction

Lung cancer is the leading cause of cancer-related death in Maine with lung cancer death rates being consistently higher than U.S. rates. In 2014 there were 1,361 new cases of lung cancer diagnosed and 917 deaths due to lung cancer in the state.¹ During 2008-2010 both females and males were significantly more likely to be diagnosed with lung cancer at a late stage (73.5% and 76.7%, respectively) in Maine compared to early-stage.² Persons with early-staged lung cancer have lower lung cancer–related mortality than those with late-stage disease. Results from the National Cancer Institute’s National Lung Screening Trial (NLST) found a 20% reduction in deaths from lung cancer among current or former heavy smokers who were screened with low-dose computed tomography (LDCT) versus individuals screened by chest x-ray.³

In December 2013, the U.S. Preventive Services Task Force (USPSTF) issued a systematic review of lung cancer screening data to update the USPSTF recommendation (last reviewed in 2004).⁴ Final recommendations issued in October 2014 are summarized in the chart below:

Population	Recommendation	Grade = B
Adults Aged 55-80, with a History of Smoking	The USPSTF recommends annual screening for lung cancer with low-dose computed tomography (LDCT) in adults aged 55 to 80 years who have a 30 pack-year smoking history and currently smoke or have quit within the past 15 years. Screening should be discontinued once a person has not smoked for 15 years or develops a health problem that substantially limits life expectancy or the ability or willingness to have curative lung surgery.	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.

Under the Affordable Care Act (ACA), cancer screenings are considered a preventive service and included under the Act’s Minimum Essential Benefits. All ACA-compliant health plans are required to cover lung cancer screening, and in most cases, must be 100% covered by the plan. It is noted, however, that some services associated with the screening service may involve out-of-pocket costs.

Since 2016, the Maine CDC Comprehensive Cancer Control Program (MCCCCP) has conducted an annual survey to assess which facilities in Maine are equipped and trained to provide the recommended LDCT screening during the previous calendar year. This report summarizes the findings of the most recent, 2018 survey, along with comparisons to previous year’s findings, where relevant.

Methodology

The first annual lung cancer screening survey was conducted in 2016 with a total of 21 facilities participating and 14 reporting that they provided LDCT lung cancer screening services. The second annual survey was emailed to 21 facilities, with a total of 16 facilities reporting they provided LDCT lung cancer screening services. The current survey, conducted in 2018, began with an email list of facilities compiled by MCCCCP through the two previous surveys. To ensure the inclusion of all imaging centers, a hard copy of the survey was also mailed to any imaging facility in Maine not on the email list. The survey was sent to a total of 42 imaging centers (27 emailed and 15 mailed). Twenty-seven facilities responded with 18 reporting that they provided LDCT lung cancer screening services during the 2017 calendar year.

Similar to the previous assessments, the core survey questions captured basic information from each facility including: which evidence-based screening guideline(s) were being followed, an estimate of how many adults had been screened using LDCT each year, and perceived barriers or challenges encountered by the facility in providing the service. The current survey was conducted in collaboration with the Maine Lung Cancer Coalition. They were interested in the data acquired through the previous surveys and assisted with the development of the questions for the current survey. The current survey includes questions on “open” and “closed” LDCT screening programs, and expanded on the barriers to screening to include Likert Scale responses to each barrier. (See Appendix A for the 2018 survey tool.)

Survey Findings

Facilities Providing Lung Cancer Screening

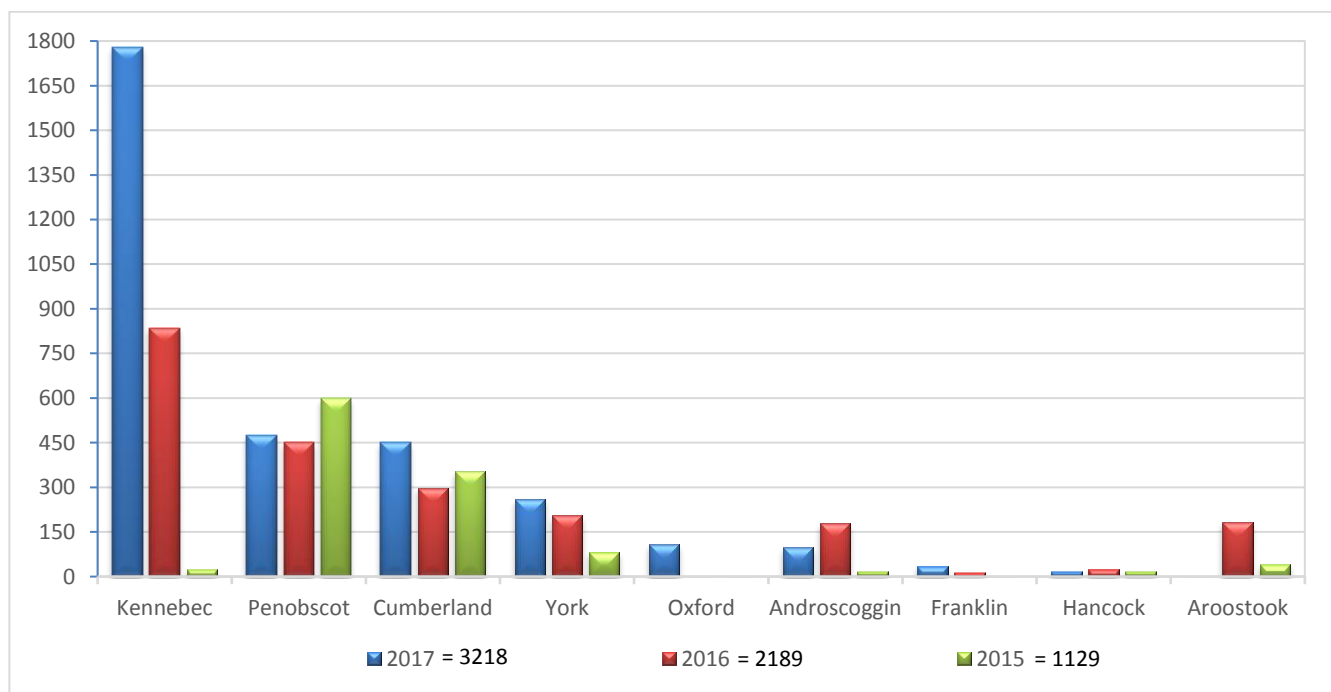
A total of eighteen facilities reported providing lung cancer screening services in Maine during 2017 (Table 1), although one of the facilities indicated that they only do follow-up scans after the initial or baseline screening

Table 1. Maine Facilities Providing Lung Cancer Screening by County

County	Facilities Providing LDCT Lung Screening Services in 2017	Facilities Providing LDCT Lung Screening Services in 2016	Facilities Providing LDCT Lung Screening Services in 2015
Androscoggin	(1) Central Maine Medical Center (2) St. Mary's Regional Medical Center	(1) Central Maine Medical Center (2) St. Mary's Regional Medical Center	(1) St. Mary's Regional Medical Center
Aroostook		(3) Cary Medical Center	(2) Cary Medical Center
Cumberland	(3) Maine Medical Center (4) Mercy Hospital (5) Mercy Hospital – Dearborn Imaging Center	(4) Maine Medical Center (5) Mercy Hospital (6) Mercy Hospital – Dearborn Imaging Center	(3) Maine Medical Center (4) Mercy Hospital (5) Mercy Hospital – Dearborn Imaging Center
Hancock	(6) Blue Hill Memorial Hospital (7) Mount Desert Island Hospital	(7) Mount Desert Island Hospital	(6) Maine Coast Memorial Hospital (7) Mount Desert Island Hospital
Franklin	(8) Franklin Memorial Hospital	(8) Franklin Memorial Hospital	
Kennebec	(9) MaineGeneral Medical Center – Alford Center for Health (10) MaineGeneral Medical Center – Thayer Center for Health (11) Togus – Maine Veterans Affairs Medical Center	(9) MaineGeneral Medical Center – Alford Center for Health (10) MaineGeneral Medical Center – Thayer Center for Health (11) Togus – Maine Veterans Affairs Medical Center	(8) MaineGeneral Medical Center – Alford Center for Health (9) MaineGeneral Medical Center – Thayer Center for Health
Oxford	(12) Stephens Memorial Hospital		
Penobscot	(13) Eastern Maine Medical Center (14) Millinocket Regional Hospital (15) Penobscot Valley Hospital	(12) Eastern Maine Medical Center (13) Millinocket Regional Hospital	(10) Eastern Maine Medical Center (11) St. Joseph Hospital
York	(16) Southern Maine Health Care (17) York Hospital in Wells (18) York Hospital in York	(14) Southern Maine Health Care (15) York Hospital in Wells (16) York Hospital in York	(12) Southern Maine Health Care (13) York Hospital in Wells (14) York Hospital in York

has been done at another facility. Among the eighteen facilities, 3,218 baseline screening LDCTs were performed in 2017, with the highest number of screenings taking place in Kennebec County (Figure 1). Not all facilities were able to breakdown the number of baseline screenings performed by sex, but of the eight who were, approximately 492 were male and 389 were female. Lung cancer screening recommendations include annual screening for lung cancer, but many of the facilities were not able to determine this number. Thirteen of the eighteen facilities reported performing 532 annual follow-up screenings. Of the estimated lung cancer screenings (both baseline and annual follow-up), sixteen facilities reported approximately 35 LDCTs resulting in a lung cancer diagnosis. In the previous year's survey, of the estimated 2,189 lung cancer screenings, approximately 37 resulted in a lung cancer diagnosis. This question was not asked in the initial survey.

Figure 1. Reported Lung Cancer Screenings by County



Reported Evidence-Based Screening Guidelines Used by Facilities

For the 18 facilities reporting lung cancer screening in 2017, the majority reported following either the Centers for Medicare & Medicaid Services (CMS) or USPSTF recommendations for defining screening eligibility (Table 2). Facilities were asked to check all screening guidelines they utilize – many reported using more than one, and as many as four. A comparison of current evidence-based lung cancer screening guidelines and recommendations from several national organizations has been included as Appendix B and is also available from the U.S. CDC at <http://www.cdc.gov/cancer/lung/pdf/guidelines.pdf>.

Overall, the recommendations define the population eligible for screening to be:

- 1) Asymptomatic adults at least 55 years of age;
- 2) Have a 30-pack year smoking history (smoking an average of one pack every day for 30 years) and
- 3) Either current smokers or have quit within the past 15 years.

Table 2. Reported Lung Cancer Screening Recommendations

Lung cancer screening guidelines used by Maine facilities	Number of facilities using guidelines		
	2017	2016	2015
Centers for Medicare & Medicaid Services <ul style="list-style-type: none"> 55-77 years old 30 or more pack year smoking history Currently smoke or have quit within the past 15 years 	9	5	4
U.S. Preventive Services Task Force <ul style="list-style-type: none"> 55-80 years old 30 or more pack year smoking history Currently smoke or have quit within the past 15 years 	7	5	6
American Cancer Society <ul style="list-style-type: none"> 55-74 years old 30 or more pack year smoking history Currently smoke or have quit within the past 15 years In relatively good health 	6	3	0
American College of Chest Physicians <ul style="list-style-type: none"> 55-74 years old 30 or more pack year smoking history Currently smoke or have quit within the past 15 years 	1	0	1
National Comprehensive Cancer Network <ol style="list-style-type: none"> 55-74 years old, 30 or more pack year smoking history and currently smoke or have quit within the past 15 years 50 years or older, 20 or more pack year smoking history and one additional risk factor (other than secondhand smoke exposure) 	4	0	2
American Association of Thoracic Surgery <ol style="list-style-type: none"> Age 55-79 years old with a 30 or more pack-year history Long-term lung cancer survivor who can tolerate lung cancer treatment in order to detect second primary lung cancer until the age of 79 Age 50 to 79 years old with a 20 pack-year smoking history and additional comorbidity 	3	0	0
American Lung Association <ul style="list-style-type: none"> Age 55-74 years old 30 or more pack year smoking history No history of lung cancer 	1	0	0
American College of Radiology <ul style="list-style-type: none"> A non-profit professional medical association They support the U.S. Preventive Services Task Force recommendations 	1	0	0
National Comprehensive Cancer Network AND U.S. Preventive Services Task Force	0	1	0
Modified National Comprehensive Cancer Network <ul style="list-style-type: none"> Specifics not given 	0	1	0
Guidelines unique to one facility <ul style="list-style-type: none"> 50 years old or older 20 or more pack year smoking history Currently smoke or have quit within the past 15 years 	0	1	0
Guidelines unique to one facility <ul style="list-style-type: none"> 55 years old or older 30 or more pack year smoking history If quit must have quit date Must be in good health 	0	0	1

There are two main types of LDCT screening programs: “open” and “closed.” Open programs allow primary care or other physicians to directly order LDCT screening for the patients without the involvement of other clinicians. Closed programs require physicians to first refer patients to an established LDCT screening program consisting of other clinicians, who conduct pre-screening evaluations and counseling, and order LDCT screening and follow-up care as needed. Fourteen facilities reported having an open program, two responded they have closed programs, one has a combination of open and closed, and one is planning to move to a closed program. When asked which type of program they preferred, twelve responded open, two answered closed, three did not have a preference, and one indicated that it was an ongoing discussion as they continue to grow.

Reported Shared Decision Making as Part of Lung Cancer Screening

Seventeen of the eighteen facilities require a patient to have a shared decision-making visit with a healthcare provider before being screened for lung cancer. Many facilities reported utilizing a Patient Navigator or other designated staff to coordinate and manage LDCT screening activities including determining screening eligibility, shared decision-making counseling, scheduling, and follow-up. Fourteen of the 18 facilities reported the use of a Patient Navigator ranging from 2-50 hours per week depending on the facility. All 18 facilities reported that they confirm whether patients who are referred for LDCT screening meet eligibility criteria before the test is performed. Most facilities (16) reported that the referring physician was responsible for conducting a shared decision-making visit, one indicated that the physician affiliated with the facilities LDCT screening program conducted the shared decision-making visit, and one responded that a nurse practitioner affiliated with the facilities LDCT screening program provided the shared decision-making visit.

Twelve facilities reported providing a decision aid(s) or decision support tool(s) to their patients, with five facilities reporting they do not, and one responding “Don’t know.” The following is a list of the reported decision aids utilized by facilities:

- Dartmouth decision aid
- AHRQ lung cancer screening patient education material
- Aspen® Lung
- ACR guidelines
- Materials and handouts developed by their own facilities

Reported Barriers to Providing Lung Cancer Screening Services

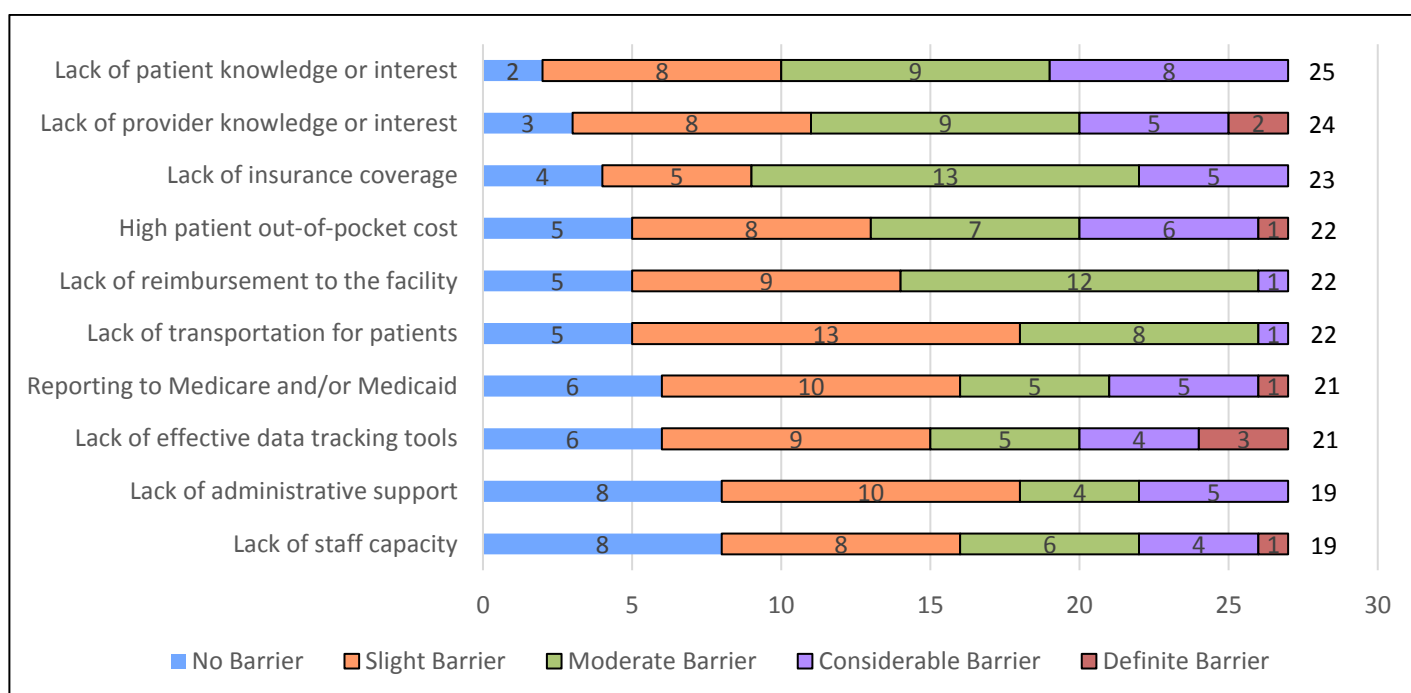
The current survey employed a Likert Scale to assess the degree to which each barrier to LDCT lung cancer screening was identified as an issue for facilities. The responses include all 27 facilities regardless of whether they are screening for lung cancer (Chart 1). The “No Barrier” numbers were disregarded for the purposes of this report, and the number to the right of each bar in Chart 1 below is the total of all facilities indicating “Slight,” “Moderate,” “Considerable,” and “Definite” for each barrier. These numbers totaled to the right of each bar are used for comparison for this report. The other numbers are included to show the variance in responses.

The largest barrier is “Lack of patient knowledge or interest” with 25 facilities indicating some level of barrier followed closely by “Lack of provider knowledge or interest” with 24 facilities reporting this as a barrier. The next largest barriers reported were associated with the cost of the test with 23 facilities citing “Lack of insurance coverage,” 22 indicating “Lack of reimbursement to the facility,” and 22 reporting “High patient out-

of-pocket cost” as barriers to screening. Twenty-two facilities identified “Lack of transportation” as a barrier with nearly half indicating this was a “Slight Barrier.” For 21 facilities “Lack of effective data tracking tools,” and “Reporting to Medicare and/or Medicaid” were barriers, followed by “Lack of staff capacity,” and “Lack of effective data tracking tools” as barriers to screening for 19 of the facilities.

The largest reported barrier to lung cancer screening in the previous survey (2016) was “Lack of provider knowledge or interest in screening” followed by “Lack of patient knowledge or interest in screening.” These barriers continue to be the top two barriers to screening in the current survey. The largest barrier to screening in the 2015 survey was associated with Medicare reporting requirements. It appears that challenges with reporting to Medicare have waned, but remain a barrier. Barriers to lung cancer screening persist at all facilities in Maine as no facility reported having no barriers to screening.

Chart 1. Reported Barriers to Lung Cancer Screening, 2017



Reported Smoking Cessation as Part of Lung Cancer Screening

Smoking cessation is an important aspect of the lung cancer screening process and is part of the shared decision-making visit. Counseling on the importance of smoking cessation if a current smoker, and providing information about tobacco cessation interventions for the patient, if appropriate, is required by CMS.⁵ Survey participants were asked if a current smoker is eligible for screening, are they then referred to tobacco cessation services/treatment resources. Ten of the facilities reported that they do refer current smokers to tobacco cessation, five reported that they do not, and three responded “Don’t know.” Of the ten facilities that do refer, six are referred by the healthcare provider, three are referred by the screening facility, and one reported referral by a nurse practitioner or ordering provider. Respondents were then asked where they refer their patients and were asked to check all options that apply (Table 4). A majority of the facilities refer their patients to the Maine Tobacco HelpLine.

Table 4. Reported Smoking Cessation Referrals

Cessation Resources	Number of facilities referring
Maine Tobacco HelpLine	9
Community/Local cessation services	1
In-house cessation services	3
1-800-QUIT-NOW (National Cancer Institute)	1
Online cessation services	0

The USPSTF recommends that health care providers engage in a brief intervention at every visit with their patients who use tobacco. Asking all patients about their tobacco use and advising them to stop using tobacco has been cited as an important motivator for making a quit attempt.⁶ Providing appropriate behavioral interventions as well as U.S. Food and Drug Administration-approved pharmacotherapy to assist with cessation have also been proven effective.⁷

Conclusion

It is estimated that in 2017 there will be 1,450 new lung cancer cases and 970 lung cancer deaths in Maine.⁸ The five-year survival rate of lung cancer is one of the lowest among all cancers, however screening of high risk individuals using current recommended guidelines could improve survival rates in Maine by finding lung cancer early when treatment may be more successful.⁹

The results from this survey reflect feedback from 18 facilities providing lung cancer screening services in Maine during 2017 and nine that do not. The MCCCCP plans to continue to repeat the statewide assessment annually to capture new facilities and lung cancer screening prevalence. Evidence-based lung cancer screening guidelines and practices will likely evolve over time as greater knowledge of the lung cancer screening recommendations is promoted.

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Appendix A: 2018 MCCCCP Lung Cancer Screening: Facility Survey

Lung Cancer Screening Survey – 2018

This survey asks for information about lung cancer screenings at your facility during 2017. If you are providing lung cancer screening and have data on the number of screenings readily available, it may help to expedite the survey process. If your facility is not currently providing lung cancer screening, we would still appreciate your responses to a few of the questions (specifically – 1, 2, 3, 31, 32 & 33 on pages 1, 6 & 7).

As a reminder, this year Maine CDC is collaborating with the Maine Lung Cancer Coalition to reduce the amount of surveys and questions asked of lung cancer screening facilities. Information from the survey will be shared with the Maine Lung Cancer Coalition unless you indicate differently in the survey. Identifiable information will not be shared or distributed outside of these two organizations.

Facility Information

1. Contact Information

Your Name: _____

Facility Name: _____

Address: _____

City/town: _____

Email: _____

Phone: _____

2. Which of the following best describes your role at your facility?

- ☐ Imaging Department Administration
- ☐ Lung cancer screening program manager/coordinator
- ☐ Patient Navigator for Lung Cancer Screening
- ☐ Doctor/Radiologist
- ☐ Radiology Technician
- ☐ Nurse
- ☐ Nurse Practitioner
- ☐ Physician assistant
- ☐ Technologist
- ☐ Other (please specify) _____

3. Please confirm that your facility is currently using Low-Dose Computed Tomography (LDCT) to screen for lung cancer.

- ☐ Yes
- ☐ No (If you answered “No,” please skip to question number 31 on page 6.)

Eligibility Criteria for Lung Cancer Screening at Your Facility

Please indicate the eligibility criteria used by your facility related to lung cancer screening.

4. What is the age range your facility requires for lung cancer screening? _____

5. What is the minimum smoking history (number of “pack years”) your facility requires for lung cancer screening eligibility? (Pack year = number of packs smoked per day multiplied by the number of years smoked.) _____

6. Does an individual need to be a current smoker to be eligible for lung cancer screening at your facility?

- ☐ Yes
- ☐ No
- ☐ Don’t know

7. To be eligible for lung cancer screening, what is the maximum number of years since a person has quit smoking allowed by your facility? _____

8. Are there any other qualifications required to be eligible for lung cancer screening at your facility?

Screening Guidelines

9. Which lung cancer screening guideline(s) does your facility follow? (Check all that apply)

- ☐ American Association of Thoracic Surgery
- ☐ American Cancer Society
- ☐ American College of Chest Physicians
- ☐ American Lung Association
- ☐ American Society of Clinical Oncology
- ☐ Centers for Medicare & Medicaid Services
- ☐ National Comprehensive Cancer Network
- ☐ US Preventive Services Task Force
- ☐ Don't know
- ☐ Other (please specify) _____

Screening Data at Your Facility

There are two main types of LDCT screening programs: “open” and “closed.” Open programs allow primary care or other physicians to directly order LDCT screening for the patients without the involvement of other clinicians. Closed programs require physicians to first refer patients to an established LDCT screening program consisting of other clinicians, who conduct pre-screening evaluations and counseling, and order LDCT screening and follow-up care as needed.

10. Is your LDCT screening program an “open” program or a “closed” program?

- ☐ Open
- ☐ Closed
- ☐ Other (please specify) _____

11. Which type of program to you prefer?

- ☐ Open
- ☐ Closed
- ☐ Neither (no preference)
- ☐ Other (please specify) _____

12. When did your facility begin offering lung cancer screenings? (mm, yyyy) _____

13. Is your facility accredited for LDCT screening by any professional organizations?

- ☐ Yes
- ☐ No (If you answered "No," please skip to question 15)
- ☐ Don't know (If you answered "Don't know," please skip to question 15)

14. Which professional organization(s) is your LDCT screening program accredited by? (Please select any that apply.)

- ☐ American College of Radiology
- ☐ Lung Cancer Alliance
- ☐ Don't know
- ☐ Other (please specify) _____

15. Does your facility submit data to the American College of Radiology Lung Cancer Screening Registry?

- ☐ Yes
- ☐ No
- ☐ Don't know

16. How many **baseline screening** LDCTs were performed at your facility in 2017? (NOTE: do not include 6-month follow-up LDCTs performed in response to an abnormal finding on a screening CT.) _____

17. How many **annual follow-up screening** LDCTs were performed in 2017 at your facility? (NOTE: do not include 6-month follow-up LDCTs performed in response to an abnormal finding on a screening CT.) _____

18. For baseline screening LDCTs, please breakdown by sex of the individual.

- Males _____
- Females _____

19. How many screening LDCTs resulted in a lung cancer diagnosis at your facility in 2017? _____

Shared Decision Making

Please answer the following questions about your facilities protocols for shared decision making.

20. Does your facility confirm whether patients who are referred for LDCT screening meet eligibility criteria before screening is performed?

- ☐ Yes
- ☐ No
- ☐ Don't know

21. Does your facility require a patient to have a shared decision-making visit with a healthcare provider before being screening for lung cancer?

- ☐ Yes
- ☐ No
- ☐ Don't know

22. At your facility, which healthcare provider has primary responsibility for conducting the shared decision-making visit with the patient?

- ☐ Referring physician
- ☐ Physician affiliated with the institution's LDCT screening program
- ☐ Nurse practitioner affiliated with the institution's LDCT screening program
- ☐ Other (please specify) _____

23. Does your facility provide any type of "decision aid" or decision support tool (e.g., written material, software or web-based program) to patients to help them decide about LDCT screening?

- ☐ Yes
- ☐ No (If you answered "No," please skip to question 25.)
- ☐ Don't know (If you answered "Don't know," please skip to question 25.)

24. What decision aid(s) or decision support tool(s) do you use?

25. Would your facility be interested in receiving patient education and counseling resources (brochures, online decision aids) to help patients understand the pros and cons of lung cancer screening?

- ☐ Yes
- ☐ No

26. Does your facility utilize a Patient Navigator or some other designated staff person to coordinate and manage LDCT screening activities (e.g. determination of screening eligibility, shared decision making counseling, scheduling and follow-up)?

- ☐ Yes
- ☐ No (If you answered "No," please skip to question 28.)
- ☐ Don't know (If you answered "Don't know," please skip to question 28.)

27. Please estimate the number of hours per week this person devotes to these activities. _____

Screening and Tobacco Referral

Please answer the following questions about lung cancer screening and patient referrals to tobacco cessation treatment.

28. If a current smoker is screened for lung cancer, does your screening protocol at your facility include a referral to tobacco cessation services regardless of diagnosis?

- ☐ Yes
- ☐ No (If you answered "No," please skip to question 31.)
- ☐ Don't know (If you answered "Don't know," please skip to question 31.)

29. Who refers screened patients who are current smokers to tobacco cessation services at your facility?

- ☐ Healthcare provider
- ☐ Screening facility
- ☐ Don't know
- ☐ Other (please specify) _____

30. Where are patients at your facility referred for tobacco cessation treatment? (Check all that apply)

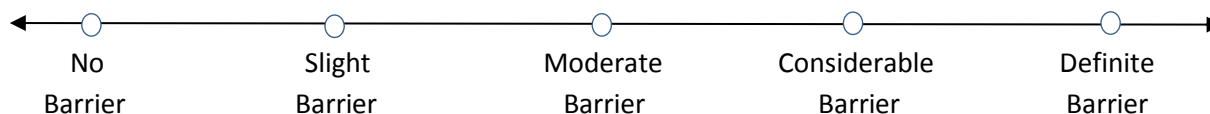
- ☐ In-house cessation services
- ☐ Community/Local cessation services
- ☐ Maine Tobacco Helpline
- ☐ 1-800-QUIT-NOW
- ☐ Online cessation services (e.g. TheQuitLink.com or Smokefree.gov)
- ☐ Don't know
- ☐ Not applicable
- ☐ Other (please specify) _____

Final Questions

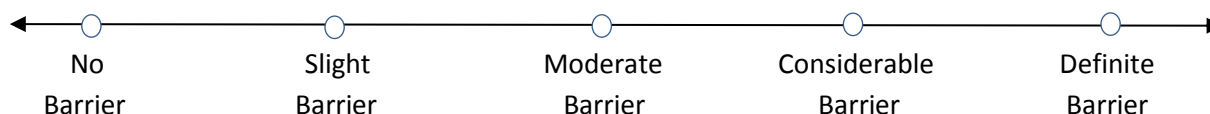
Whether your facility is currently providing lung cancer screening or not, there are barriers that make the work challenging.

31. In you/your facility's opinion, what are the greatest barriers to lung cancer screening at your facility, and the degree to which each is a barrier?

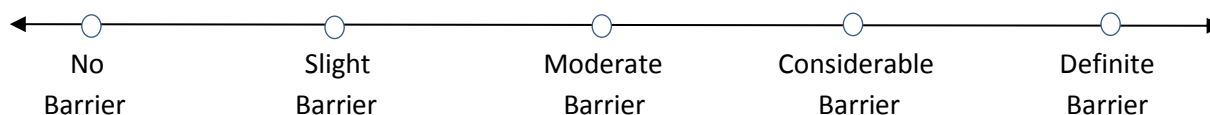
Lack of insurance coverage of patients



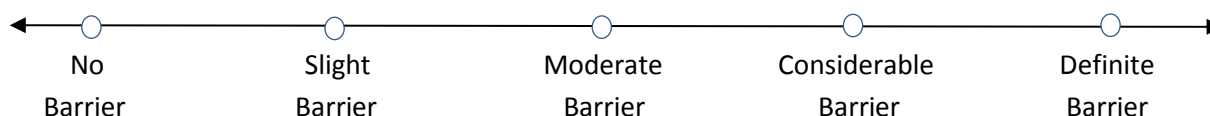
High patient out-of-pocket cost



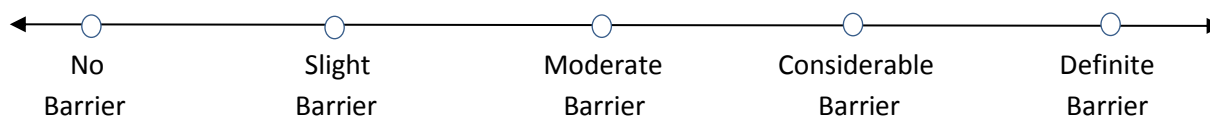
Lack of administrative support for lung cancer screening program



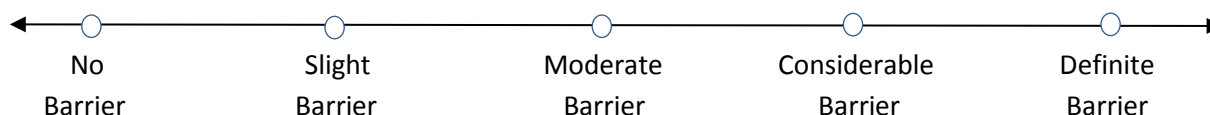
Lack of staff capacity



Lack of reimbursement to facility



Reporting to Medicare and/or MaineCare (Medicaid)



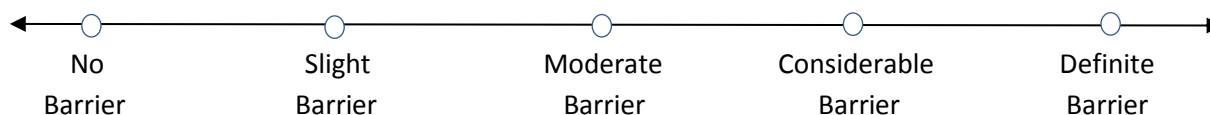
Lack of efficient/effective data tracking tools



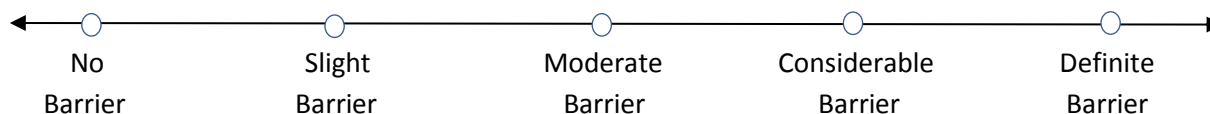
Lack of patient knowledge or interest in screening



Lack of provider knowledge or interest in screening



Lack of transportation for patients



Other (please specify) _____



32. Are you willing to allow Maine CDC to share your responses with the Maine Lung Cancer Coalition?

- ☐ Yes
- ☐ No

33. Is there anything you would like to add?

Thank you for participating in the survey!

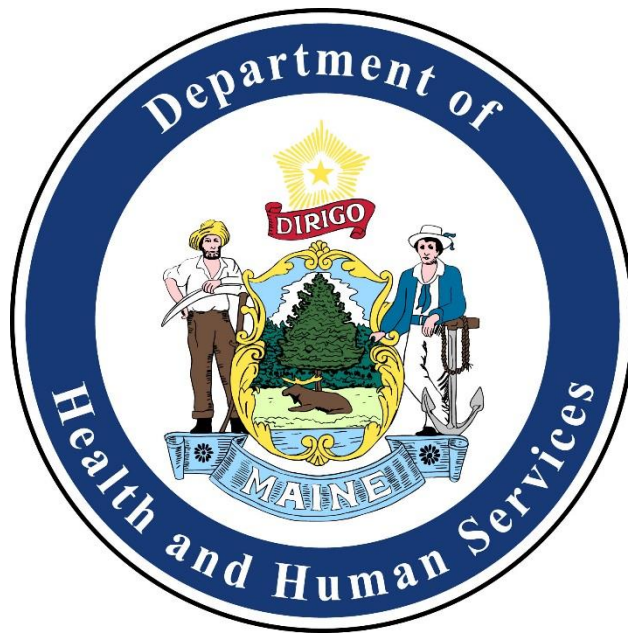
Appendix B: Lung Cancer Screening Guidelines and Recommendations

Organization	Groups eligible for screening	Year
American Academy of Family Practice¹	Evidence is insufficient to recommend for or against screening.	2013
American Association for Thoracic Surgery²	1. Age 55 to 79 years with ≥ 30 pack-year smoking history. 2. Long-term lung cancer survivors who have completed 4 years of surveillance without recurrence, and who can tolerate lung cancer treatment in order to detect second primary lung cancer until the age of 79. 3. Age 50 to 79 years with a 20 pack-year smoking history and additional comorbidity that produces a cumulative risk of developing lung cancer $\geq 5\%$ in 5 years.	2012
American Cancer Society³	Age 55 to 74 years with ≥ 30 pack-year smoking history, either currently smoking or have quit within the past 15 years, and who are in relatively good health.	2013
American College of Chest Physicians⁴	Age 55 to 74 years with ≥ 30 pack-year smoking history and either continue to smoke or have quit within the past 15 years.	2013
American College of Chest Physicians and American Society of Clinical Oncology⁵	Age 55 to 74 years with ≥ 30 pack-year smoking history and either continue to smoke or have quit within the past 15 years.	2012
American Lung Association⁶	Age 55 to 74 years with ≥ 30 pack-year smoking history and no history of lung cancer.	2012
National Comprehensive Cancer Network⁷	1. Age 55 to 74 years with ≥ 30 pack-year smoking history and smoking cessation < 15 years. 2. Age ≥ 50 years and ≥ 20 pack-year smoking history and 1 additional risk factor (other than secondhand smoke). ^a	2012
U.S. Preventive Services Task Force⁸	Age 55 to 80 years with ≥ 30 pack-year smoking history and smoking cessation < 15 years.	2013

^a Additional risk factors include cancer history, lung disease history, family history of lung cancer, radon exposure, occupational exposure, and history of chronic obstructive pulmonary disease or pulmonary fibrosis. Cancers with increased risk of developing new primary lung cancer include survivors of lung cancer, lymphomas, cancer of the head and neck, and smoking-related cancers. Occupational exposures identified as carcinogens targeting the lungs include silica, cadmium, asbestos, arsenic, beryllium, chromium (VI), diesel fumes, and nickel.

Continued - Lung Cancer Screening Guidelines and Recommendations: References

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